

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
1 November 2001 (01.11.2001)

PCT

(10) International Publication Number
WO 01/81155 A2

(51) International Patent Classification⁷: B62D 23/00, 27/02

(81) Designated States (*national*): AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW.

(21) International Application Number: PCT/US01/12875

(22) International Filing Date: 20 April 2001 (20.04.2001)

(25) Filing Language: English

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

(30) Priority Data: 09/557,061 21 April 2000 (21.04.2000) US

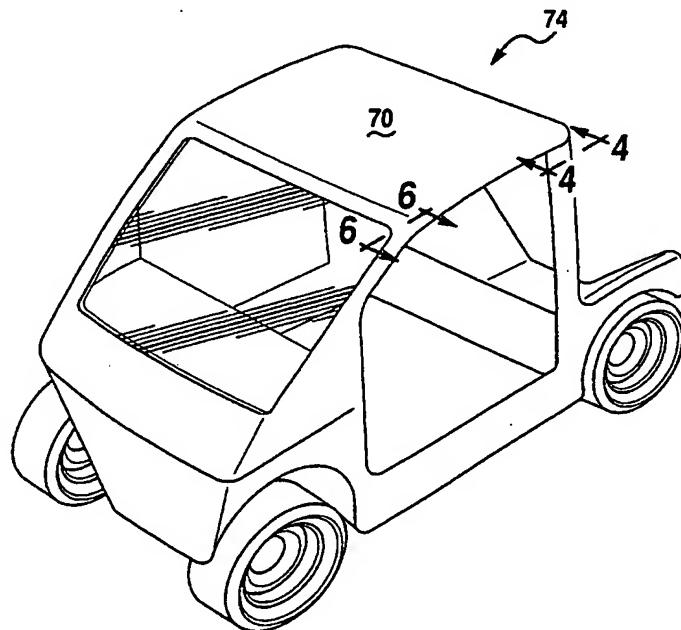
Published:

— without international search report and to be republished upon receipt of that report

(71) Applicant and
(72) Inventor: CHAZ, Haba [US/US]; 16760 Schoenborn Street, North Hills, CA 91343 (US).

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: A MEMBER AND A METHOD FOR USING THE MEMBER TO SELECTIVELY CREATE AN ITEM



(57) Abstract: A member 10 which may be used to create a frame assembly 50. The member includes substantially identical portions 12, 14 which include substantially identical and substantially linearly coextensive channels 18, 20, effective to allow the member 10 to securely receive a plurality of members 24, 26, and 30 and to cooperate with these and other members 24, 26, 30, and 10 to form frame assembly 50.

WO 01/81155 A2

DescriptionA Member and a Method for Using the Member to Selectively Create an ItemField of the Invention

The present invention generally relates to a member and to a method for using
5 the member to selectively create an item and more particularly, to a member which
allows an item to be efficiently and quickly assembled and/or created.

Background of the Invention

Items, such as utility vehicles or golf carts, are created or assembled by the
use of several members which are selectively and weldably interconnected, thereby
10 cooperatively forming the structure or the frame of the item. Particularly, a first pair
of these members are typically interconnected and the frame structure is subsequently
“grown” or created by sequentially interconnecting members to the partially
completed and the then existing frame structure until the frame is completed. The
completed frame is then used to operatively support various devices and/or
15 assemblies, thereby allowing the item to be created and effective to cause the created
item to perform some desired function.

While this approach does allow an item to be created, it suffers from some
drawbacks. That is, this approach requires a relatively large amount of time and
effort in order to properly and initially align (and maintain the proper alignment of
20 the members) as the members are respectively interconnected. Further, by way of
example and without limitation, this approach does not typically allow the members
to be practically and/or easily “preassembled” in order to allow one to determine
whether the various and respective geometric configurations of the members allow a
desired frame structure to be completed and/or to allow one to evaluate different

frame structure alternatives before the frame is actually constructed and/or assembled.

There is therefore a need for a member and a method for using the member to create an item in a manner which overcomes the various and previously delineated
5 drawbacks of prior members and/or methods.

Summary of the Invention

It is a first object of the present invention to provide a member and a method for using the member in a manner which overcomes at least some of the previously delineated drawbacks of prior frame forming members and methods.

10 It is a second object of the present invention to provide a member and a method for using the member in a manner which overcomes at least some of the previously delineated drawbacks of prior members and methods and which, by way of example and without limitation, allows an item to be efficiently constructed.

15 It is a third object of the present invention to provide a member and a method for using the member in a manner which allows a frame to be efficiently produced and/or created and which further allows a frame assembly to be efficiently and removably constructed.

20 It is a fourth object of the present invention to provide a member and a method for using the member to create a utility type vehicle in a manner which overcomes at least some of the previously delineated drawbacks associated with prior members and methods.

According to a first aspect of the present invention a member is provided. The member includes substantially identical first and second portions which cooperatively form a pair of substantially identical channels, each of the first and

WO 01/81155

PCT/US01/12875

second portion having a substantially identical ridge portion which respectively
interrupts the first and second channels.

According to a second aspect of the present invention a member is provided.

The member includes at least a pair of tubular portions which integrally terminate
5 within and which emanate from a neck portion and which cooperate with the neck
portion to form a pair of discontinuous grooves.

According to a third aspect of the present invention a method for creating an
item is provided. The method comprises the steps of forming a plurality of joints
which have discontinuous grooves; forming a plurality of tubular members; placing
10 the tubular members into the joint members; and closing the channels, thereby
forming the item.

These and other features, aspects, and advantages of the present invention
will become apparent from a reading of the following detailed description of the
preferred embodiment of the invention and by reference to the following drawings.

15 **Brief Description of the Drawings**

Figure 1 is a perspective view of a frame assembly which is made in
accordance with the methodology of the preferred embodiment of the invention;

Figure 2 is a perspective view of an item which is made in accordance with
the teachings of the preferred embodiment of the invention;

20 Figure 3 is a perspective view of a member which is made in accordance with
the teachings of the preferred embodiment of the invention and which is shown as
selectively receiving three tubular members;

Figure 4 is a cross-sectional view of the item which is shown in Figure 2 and
which is taken generally along view line 4-4;

Figure 5 is a perspective view of a member which is made in accordance with the teachings of a second embodiment of the invention;

Figure 6 is a cross-sectional view of the item which is shown in Figure 2 and which is taken generally along view line 6-6;

5 Figure 7 is a cross-sectional view of the member which is shown in Figure 5 and which is taken generally along view line 7-7; and

Figure 8 is a cross-sectional view of the member which is shown in Figure 3 and which is taken generally along view line 8-8.

Detailed Description of the Preferred Embodiment of the Invention

10 Referring now to Figure 3, there is shown a member 10 which is made in accordance with the teachings of the preferred embodiment of the invention. Particularly, member 10 is substantially symmetrical about plane 12 and forms and/or comprises a pair of substantially identical portions 14, 16 on each side of the plane of symmetry 12. In one non-limiting embodiment of the invention, member 10
15 may be formed from a single die-cast operation and portions 14, 16 may be an integral part of the selectively formed member 10.

Particularly, portions 14, 16 cooperatively form substantially identical grooves, passages, and/or channels 18, 20 which are interrupted or caused to be discontinuous by a substantially identical ridge portion 22. In one non-limiting 20 embodiment of the invention, each of the channels 18, 20 is substantially rectangular, although other shapes may be utilized, and each of the channels 18, 20 is linearly coextensive. Hence, as shown, portions 14, 16 cooperate to form a member 10 having at least two protruding and generally hollow and generally cylindrical tubular portions 24, 26 which integrally terminate within a neck or generally hollow throat

WO 01/81155

PCT/US01/12875

portion 28. A third protruding and generally hollow and generally cylindrical member 30 also integrally terminates within the throat portion 28. In one non-limiting embodiment of the invention, each portion 24, 26, and 30 is substantially similar. Thus, channel 18 traverses a portion of portions 24 and 30 while channel 20
5 traverses a portion of portions 26 and 30. Each channel 18, 20, in one non-limiting embodiment, forms a substantially right angle. Each pair of portions 26, 20 and 24, 30 each form respective right angles, although other angles may be selectively utilized.

In one non-limiting embodiment of the invention, ridge portions 22 are
10 disposed within respective channels 18, 20 at the position or portion in which each respective channel 18, 20 forms a respective right angle. As shown best in Figures 7 and 8, ridge portions 22 may either be depressed (i.e., extending through a channel 18, 20 and into the throat portion 28 or as best shown in Figures 3 and 8, or raised (i.e., outwardly extending from channel 18, 20 and away from the throat portion 28,
15 as best shown in Figures 5 and 7). The use of these ridge portions 22 to substantially allow relatively tight joints to be created is further discussed below.

According to the methodology of the preferred embodiment of the invention, substantially identical tubular and/or generally cylindrical members 40, 42, and 44 may be selectively and removably and frictionally placed within respective portions
20 24, 26, and 30, thereby forming a joint assembly. It should be realized that in various non-limiting embodiments of the invention, members 40, 42, 44 may be selectively and respectively bent or shaped in a desired manner and that the use of a plurality of joint members 10 and members 40, 42, and 44 allows a frame, such as frame 50 of

Figure 1, to be selectively constructed and to have a desired shape (i.e., each member 40, 42, 44 may be coupled to and/or used to form a pair of joint assemblies).

In this manner, an entire frame 50 may be removably constructed in order to evaluate the overall frame assembly, to allow a substantially accurate assessment to 5 be of the potential for creating a desired frame shape or configuration by the members 10 and 24, 26, and 30, and to allow various frames 50 having varied geometric configurations to be removably constructed, thereby allowing various changes and modifications to be made to the various members 10, 40, 42, 44 in order to allow various types of desired frames to be created. It should also be realized that 10 the size and shape of each or all of the portions 40, 42, 44 may be altered and/or modified from that which is shown in the various Figures 1-8, in order to allow different types of members 40, 42, 44 to be used in the creation of a frame assembly 50. Hence, a plurality of joint members 10 are selectively interconnected by the use of members 40, 42, 44 to form frame 50.

15 After the frame 50 has been constructed, the created channels 18,20 of each member 10 are selectively closed by the use of adhesive material which may be selectively deposited within the channels 18, 20 and/or by welding or otherwise joining the respective edges 60, 62 of each channel 18, 20, thereby securing the received members 40,42, and 44 within respective portions 24, 26, and 30 of each of 20 the joint assemblies 10.

The depressed version or type of ridge 22, as best shown in Figure 8, allows the deposited material to adheserably reside within the "dimple" or depression portion 23, thereby allowing a substantially continuous bead of material to be deposited in each of the channels 18, 20 and/or allowing a continuous weld to be made if the

opposed channel edges 60, 62. The raised portion 25 of type ridge 22, as best shown in Figure 7, increases the strength of the formed connection over that of the ridge configuration shown in Figure 3, by allowing a greater amount of material to reside within the channels 18, 20 (i.e., an amount of material substantially equal to the thickness or the height of the raised ridge 22), thereby providing a more secure joint.

The linear coextensiveness of each of the channels 18, 20 substantially ensures that the formed joint is of substantially equal tightness on opposed sides of each of the members 40, 42, 44.

After the frame 50 has been created, panels 70 may be selectively adhered to the various members 10, 40, 42, 44 by the use of an adhesive 72, thereby forming item 74 which is shown, by way of example and without limitation, in Figure 2. Each of the panels 70 may be dissimilar and even may include a substantially transparent panel 76.

A second member embodiment is shown in Figure 5. Particularly, member 80 is substantially similar to member 10 except that portion 30 includes a pair of substantially similar serrated or notched portions 102, 104 which allows the member 80 (i.e. portion 30 of member 80) to be welded to the received member 44, further securing the received member within the portion 24 and within the member 80.

It should be understood that the invention is not to be limited to the exact construction and method which has been previously delineated above, but that various changes and modifications may be made without departing from the spirit and the scope of the invention as is more fully found in the claims.

What is Claimed is:

- (1) A member having substantially identical first and second portions, each of the first and second substantially identical portions including a channel which is 5 interrupted by a ridge portion.
- (2) The member of Claim 1 wherein each of the channels forms a substantial right angle.
- (3) The member of Claim 2 wherein each of the channels is substantially rectangular.
- 10 (4) The member of Claim 3 wherein said member is substantially hollow.
- (5) A member having at least a pair of tubular portions which protrude from and which integrally terminate within a neck portion, said member further having a pair of channels which respectively traverse a unique one of the tubular portions and the neck portion.
- 15 (6) The member of Claim 5 wherein each of the channels is discontinuous.
- (7) The member of Claim 6 wherein said member further includes a first and a second substantially identical ridge portion which respectively extend into a first and a second of said pair of channels.
- (8) The member of Claim 7 wherein said channels are each substantially rectangular.
- 20 (9) The member of Claim 8 further comprising a third tubular portion which protrudes from the neck portion.
- (10) The member of Claim 9 wherein said third tubular portion form a right angle with the at least a pair of said tubular portions.

- (11) The member of Claim 10 wherein the first ridge portion perpendicularly extends into said first channel.
- (12) The member of Claim 11 wherein the second ridge portion perpendicularly extends into the second channel.
- 5 (13) A method comprising the steps of forming a plurality of joints, each of the joints having at least two discontinuous grooves; obtaining a plurality of tubular members; placing said plurality of tubular members into the plurality of joints; and closing said at least two discontinuous grooves of each of said plurality of joints, thereby forming a frame assembly.
- 10 (14) The method of Claim 13 further comprising the step of placing panels on said frame assembly.
- (15) The method of Claim 14 wherein said step of placing panels onto said frame assembly comprises the step of gluing said panels onto said frame assembly.
- (16) The method of Claim 15 wherein each of the plurality of joints are hollow.
- 15 (17) The method of Claim 16 wherein each of said grooves is substantially identical.
- (18) The method of Claim 17 wherein each of said grooves is substantially rectangular.
- (19) The method of Claim 18 wherein said discontinuity of each of said grooves is created by the use of a plurality of ridge portions, each of said ridge portions residing within a unique one of said grooves.
- 20 (20) The method of Claim 19 further comprising the step of causing each of said ridge portions to outwardly extend from a unique one of said grooves.

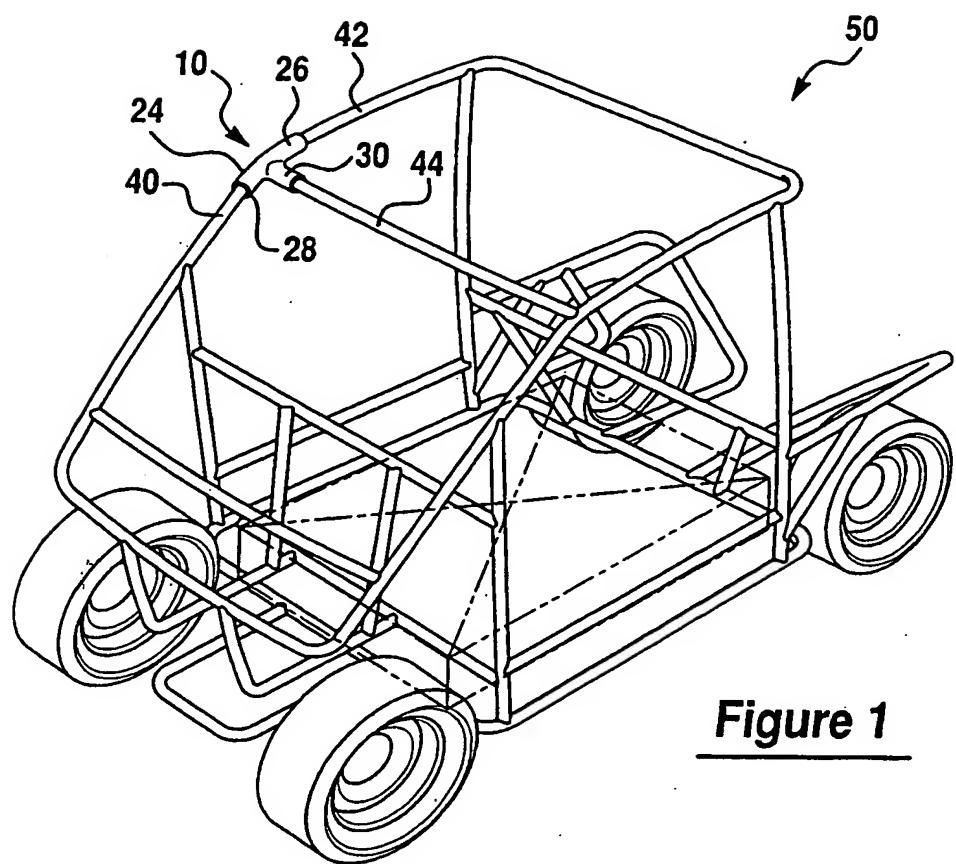


Figure 1

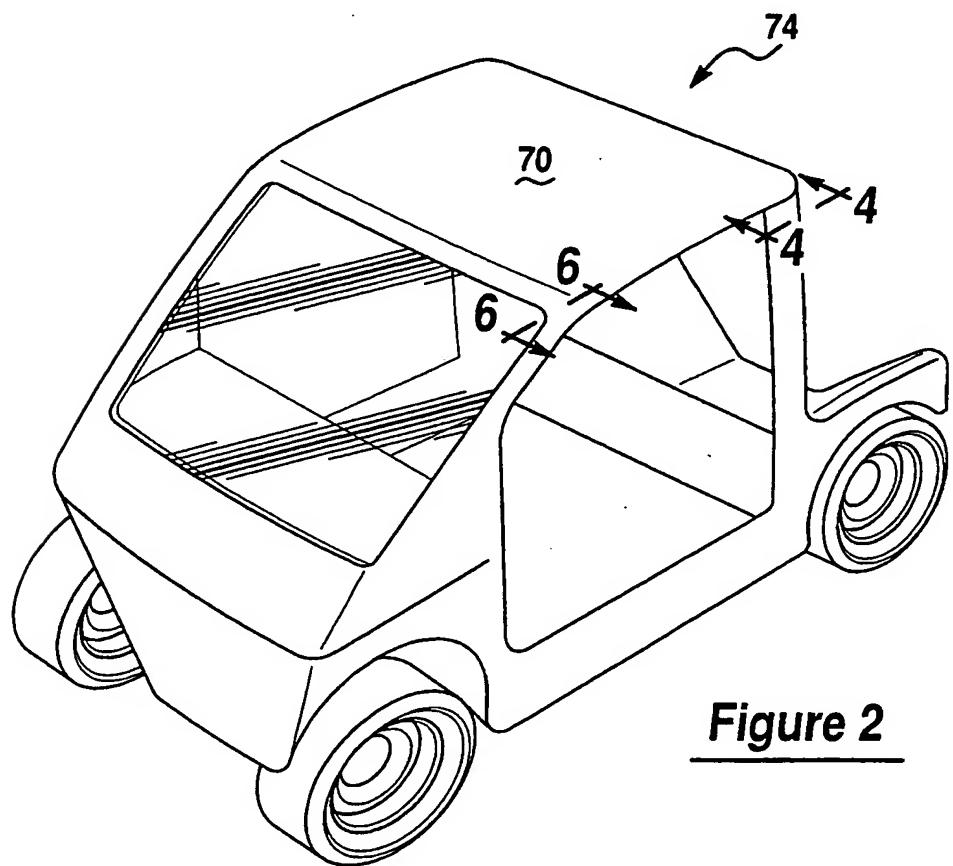


Figure 2

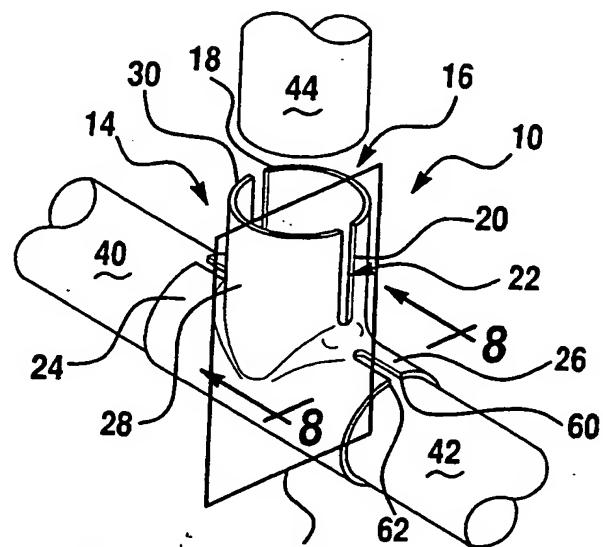


Figure 3

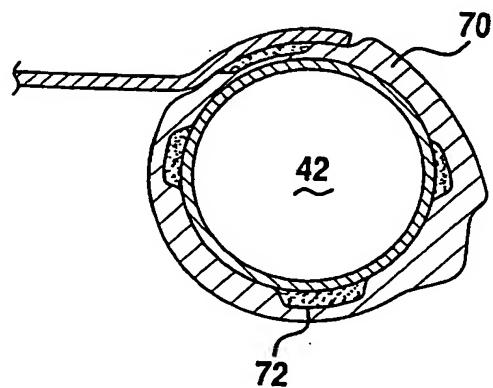


Figure 4

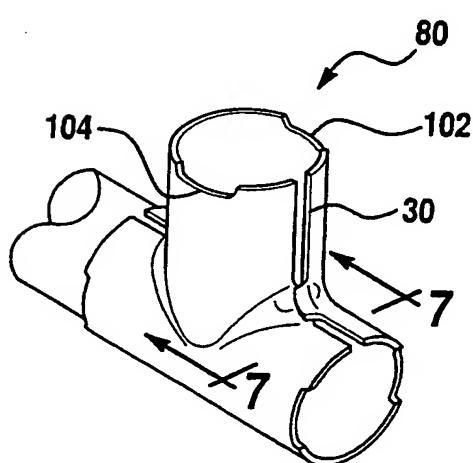


Figure 5

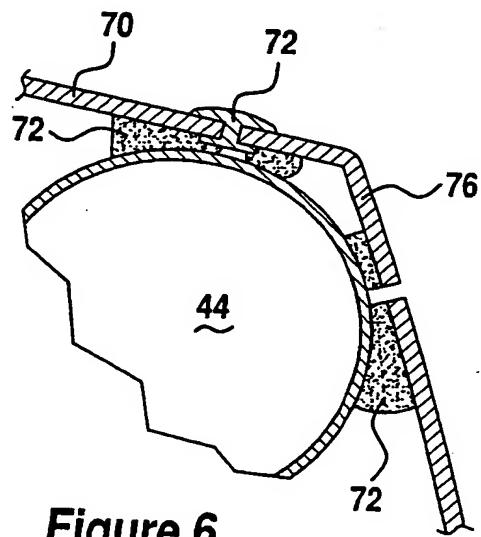


Figure 6

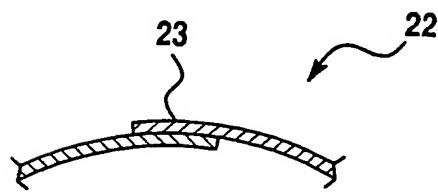


Figure 7

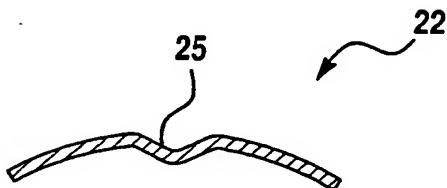


Figure 8

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
1 November 2001 (01.11.2001)

PCT

(10) International Publication Number
WO 01/81155 A3

(51) International Patent Classification⁷: B62D 23/00.
27/02

FI, GB, GI, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG,
MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE,
SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN,
YU, ZW.

(21) International Application Number: PCT/US01/12875

(84) Designated States (*regional*): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW). Eurasian
patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM). European
patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE,
IT, LU, MC, NL, PT, SE, TR). OAPI patent (BF, BJ, CF,
CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

(22) International Filing Date: 20 April 2001 (20.04.2001)

Published:

— with international search report

(25) Filing Language: English

(88) Date of publication of the international search report:
21 February 2002

(26) Publication Language: English

(30) Priority Data:
09/557,061 21 April 2000 (21.04.2000) US

(71) Applicant and

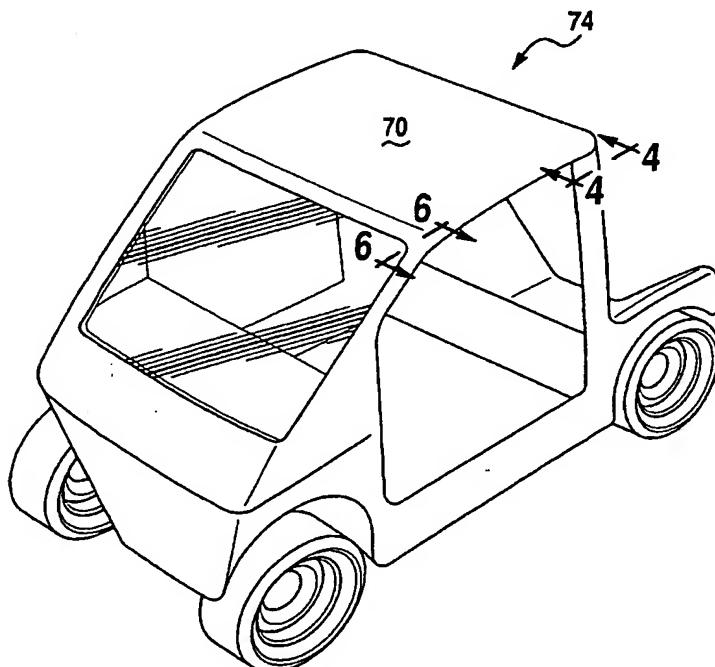
For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(72) Inventor: CHAZ, Haba [US/US]: 16760 Schoenborn
Street, North Hills, CA 91343 (US).

(74) Agent: CHUPA, John, G.: 31313 Northwestern Highway,
Suite 205, Farmington Hills, MI 48334 (US).

(81) Designated States (*national*): AL, AM, AT, AU, AZ, BA,
BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES,

(54) Title: COUPLING MEMBER FOR INTERCONNECTING PROFILES TO CREATE A FRAME ASSEMBLY



WO 01/81155 A3

(57) Abstract: A member 10 which may be used to create a frame assembly 50. The member includes substantially identical portions 12, 14 which include substantially identical and substantially linearly coextensive channels 18, 20, effective to allow the member 10 to securely receive a plurality of members 24, 26, and 30 and to cooperate with these and other members 24, 26, 30, and 10 to form frame assembly 50.

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 01/12875

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 B62D23/00 B62D27/02

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 B62D E04B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 1 760 955 A (MOSS HERBERT H) 3 June 1930 (1930-06-03) figures 1,3-5 page 2, right-hand column, line 94 -page 3, left-hand column, line 37	1,2,4-7, 9-13, 16-19
A	EP 0 873 933 A (PORSCHE AG) 28 October 1998 (1998-10-28) figures 1-3 column 1, line 58 -column 2, line 35	1,2,4-6, 9,10,13, 16
A	DE 195 38 803 A (FIAT AUTO SPA) 25 April 1996 (1996-04-25) figure 1 column 2, line 41 -column 3, line 30	3,8

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

* Special categories of cited documents :

- *'A' document defining the general state of the art which is not considered to be of particular relevance
- *'E' earlier document but published on or after the international filing date
- *'L' document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *'O' document referring to an oral disclosure, use, exhibition or other means
- *'P' document published prior to the international filing date but later than the priority date claimed

*'T' later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

*'X' document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

*'Y' document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

*'&' document member of the same patent family

Date of the actual completion of the international search

12 November 2001

Date of mailing of the international search report

19/11/2001

Name and mailing address of the ISA
European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Deraymaeker, D

INTERNATIONAL SEARCH REPORT

International Application No
 PCT/US 01/12875

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4 660 345 A (BROWNING JAMES R) 28 April 1987 (1987-04-28) figures 1,2,27 column 2, line 43 -column 3, line 53 column 15, line 59 -column 16, line 8 ----	3,8
A	US 3 292 969 A (EGGERT JR WALTER S) 20 December 1966 (1966-12-20) figures 1,4 column 2, line 62 -column 3, line 21 ----	14
A	US 5 800 003 A (CLENET ALAIN J-M) 1 September 1998 (1998-09-01) column 1, line 42 -column 2, line 62 -----	15

INTERNATIONAL SEARCH REPORT

Information on patent family members

Inte	.ional Application No
	PCT/US 01/12875

Patent document cited in search report		Publication date		Patent family member(s)		Publication date
US 1760955	A	03-06-1930	NONE			
EP 0873933	A	28-10-1998	DE EP JP US	19716865 C1 0873933 A2 10316010 A 6148581 A	28-05-1998 28-10-1998 02-12-1998 21-11-2000	
DE 19538803	A	25-04-1996	IT DE FR	T0940844 A1 19538803 A1 2726055 A1	22-04-1996 25-04-1996 26-04-1996	
US 4660345	A	28-04-1987	US	4735355 A	05-04-1988	
US 3292969	A	20-12-1966	NONE			
US 5800003	A	01-09-1998	AU WO	5691298 A 9830430 A1	03-08-1998 16-07-1998	